

CLAIMS

What is claimed is:

1 1. A system in a device having at least one application data
2 destination having a format, comprising:

3 a difference engine receiving difference information
4 associated with a change to said at least one application data
5 destination; and

6 an application interface, applying said difference information
7 to said at least one data destination.

1 2. The application of claim 1 wherein said difference engine
2 comprises:

3 a data store reflecting application data at a state prior to receipt of
4 said difference information; and

5 a delta engine receiving difference information and comparing
6 difference information to said data store to construct change information.

1 3. The application of claim 2 wherein the difference information
2 comprises a data file containing change transactions which is combined
3 with data in the data store.

1 4. The application of claim 2 wherein said application interface
2 applies said combined data to said application data destination.

1 5. The application of claim 4 wherein said application interface

2 receives change information in a universal data format.

1 6. The application of claim 1 wherein said application interface
2 comprises an input receiving universal format data from said difference
3 engine and an output to said application data destination format.

1 7. The application of claim 6 further including a plurality of
2 application interfaces for a plurality of application data destination formats.

1 8. The application of claim 1 further including a decryption
2 routine.

1 9. The application of claim 8 wherein the decryption routine
2 decrypts the difference information prior to input to the difference engine.

1 10. The application of claim 1 further including a compression
2 routine.

1 11. The application of claim 10 wherein the compression routine
2 decompresses the difference information prior to input to the difference
3 engine.

1 12. The application of claim 1 wherein the application interface
2 includes an extraction interface having an application data destination
3 format input and a universal data format output, and the differencing engine
4 includes a universal data input and a difference information output.

1 13. The application of claim 12 wherein the device is coupled to
2 a network, difference engine includes a network interface and wherein the
3 difference engine outputs difference information via said network interface.

1 14. The application of claim 1 wherein the device is coupled to a
2 network and difference engine includes a network interface.

1 15. The application of claim 14 wherein the difference engine
2 receives said difference information via said network interface.

1 16. The application of claim 1 further including a versioning
2 module coupled to the difference engine.

1 17. The application of claim 16 wherein the versioning module
2 determines a version of said difference information.

1 18. The application of claim 1 further including an event trigger.

1 19. The application of claim 18 wherein the event trigger enables
2 receipt of said difference information by the application.

1 20. An application for applying changes to data from a source to

2 a destination having a destination format, comprising:
3 a difference information selection routine; and
4 a difference reconstruction routine.

1 21. The application of claim 20 wherein the difference information
2 selection routine includes:

3 a data store reflecting the state of the data prior to receipt of said
4 difference information; and

5 a delta engine receiving difference information and comparing
6 difference information to said data store to construct changed information.

1 22. The application of claim 21 wherein the difference information
2 comprises a set of transactions which is compared to the data store.

1 23. The application of claim 21 wherein said difference
2 information reconstruction routine includes a translator receiving changed
3 information in a universal format data from said difference information
4 selection routine and outputting changes to said data in the destination
5 format.

1 24. The application of claim 23 further including a plurality of
2 application interfaces for a plurality of destination formats.

1 25. The application of claim 20 further including:
2 a construction routine having an extraction interface including an
3 destination format input and a universal data format output, and wherein

4 said difference information selection routine reads said universal data
5 output to generate change transactions indicating changes to the
6 destination data.

1 26. The application of claim 25 wherein the device is coupled to
2 a network, the difference engine includes a network interface and wherein
3 the difference engine outputs change transactions via said network
4 interface.

1 27. The application of claim 21 wherein the device is coupled to
2 a network and difference engine includes a network interface.

1 28. The application of claim 21 wherein the difference information
2 selection routine receives said difference information via said network
3 interface.

1 29. A method for updating data files in a system, comprising:
2 (A) receiving difference information for a subset of said
3 data files; and
4 (B) applying said difference information to said subset of
5 said data files.

1 30. The method of claim 29 wherein said step of receiving
2 comprises:

3 (i) receiving a change log detailing changes to data files on
4 another system; and

5 (ii) applying said changes to a data store containing data
6 identical to said data files to generate changed data.

1 31. The method of claim 30 wherein said step (i) comprises
2 generating changes to said data in a universal data format.

1 32. The method of claim 31 wherein said step (B) comprises:
2 converting said changes in said universal data format to an
3 application specific format; and
4 updating said data with changes to said data.

1 33. An application in a system having a data source in a source
2 format, comprising:

3 an application interface, extracting data from said data
4 source; and

5 a difference engine receiving said data and outputting
6 difference information associated with changes to said data source.

1 34. The application of claim 33 wherein the application interface
2 includes a source format interface; and

3 a converter to map said data from said source format into a universal
4 format.

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1 35. The application of claim 33 wherein said difference engine
2 comprises:

3 a data store reflecting a prior state of said data; and

4 a delta generator comparing said data and said data store to provide
5 change transactions.

1 36. The application of claim 34 wherein said application interface
2 extracts data from said data source.

1 37. The application of claim 36 wherein said application interface
2 converts source data to a universal data format.

1 38. The application of claim 33 wherein said application interface
2 includes an input receiving source format data and an output providing
3 universal format data.

1 39. The application of claim 35 further including a plurality of
2 source format interfaces for a plurality of source formats.

1 40. The application of claim 33 further including a decryption
2 routine.

1 41. The application of claim 40 wherein the decryption routine
2 decrypts the difference information following output from the difference
3 engine.

1 42. The application of claim 33 further including a compression
2 routine.

1 43. The application of claim 42 wherein the compression routine
2 decompresses the difference information following output from the
3 difference engine.

1 44. The application of claim 33 wherein the application interface
2 includes an reconstruction interface having a source format output and a
3 universal data format input, and the differencing engine includes a
4 universal data output and a source format input.

1 45. The application of claim 44 wherein the device is coupled to
2 a network, difference engine includes a network interface and wherein the
3 difference engine receives difference information via said network interface.

1 46. The application of claim 33 wherein the device is coupled to
2 a network and difference engine includes a network interface.

1 47. The application of claim 46 wherein the difference engine
2 outputs said difference information via said network interface.

1 48. The application of claim 33 further including a versioning
2 module coupled to the difference engine.

1 49. The application of claim 48 wherein the versioning module

2 determines a version of said difference information.

1 50. The application of claim 33 further including an event trigger.

1 51. The application of claim 50 wherein the event trigger enables
2 receipt of said difference information by the application.

1 52. An application in a device for distributing changes made to
2 device data in a system specific format, comprising:
3 a device data extraction routine; and
4 a change transaction generation routine.

1 53. The application of claim 52 wherein the change transaction
2 generation routine includes:

3 a data store reflecting the state of the device data prior to generation
4 of said change transactions; and

5 a delta engine generating change transactions by comparing said
6 data to said data store to construct change transactions.

1 54. The application of claim 52 wherein said device data
2 extraction routine includes a translator reading changes to said data in the
3 system specific format and outputting change information in a universal
4 data format.

1 55. The application of claim 54 further including a plurality of

2 application interfaces for a plurality of system specific formats.

1 56. The application of claim 52 further including:

2 a construction routine having an extraction interface including an
3 system specific format input and a universal data format output, and
4 wherein said change transaction generation routine reads said universal
5 data output to generate change transactions for said data.

1 57. The application of claim 56 wherein the device is coupled to
2 a network, the change log generation routine includes a network interface
3 and wherein the change log generation routine outputs difference
4 information via said network interface.

1 58. The application of claim 52 further including:

2 code for applying change transactions to the device data from a
3 source in the system specific format, comprising:

4 a difference information selection routine;

5 a database reflecting the state of the data at state prior to receipt of
6 source difference information; and

7 a delta engine receiving source difference information and comparing
8 difference information to said database to construct change information for
9 the device data; and

10 a difference reconstruction routine applying the change information
11 to the device data.

1 59. A method for updating a data source in a system, comprising:

2 extracting difference information from at least a subset of said data
3 source; and
4 outputting difference information for at least the subset of said data
5 source.

1 60. The method of claim 59 wherein said step of outputting
2 comprises:

3 determining whether changes have been made to the subset of data
4 source in the system; and

5 generating a change log detailing changes to the subset of data
6 source on another system.

1 61. The method of claim 59 wherein said step of determining
2 comprises:

3 comparing data from said subset of data source to a data
4 store reflecting a previous state of the data source.

1 62. The method of claim 59 wherein said generating step
2 comprises generating changes to said data in a universal data format.

1 63. The method of claim 62 further including the step of:
2 receiving change information for said data source;
3 converting said change information into updated source data; and
4 updating said source with changes to said updated source data.

1 64. An application in a system containing a plurality of data files,
2 comprising:

3 an extraction routine for extracting a first set of difference
4 information resulting from changes to the data files;

5 a differencing transmitter for transmitting said first set of
6 difference information to an output;

7 a differencing receiver for receiving a second set of difference
8 information from an input; and

9 a reconstruction routine for applying the second set of
10 difference information to the data files.

1 65. The application of claim 64 wherein said difference routine
2 comprises:

3 a data store reflecting the state of the data files at a state prior to
4 receipt of said difference information; and

5 a delta engine receiving difference information and comparing
6 difference information to said data store to construct change information.

1 66. The application of claim 64 further including a decryption
2 routine.

1 67. The application of claim 64 further including a compression
2 routine.

1 68. The application of claim 64 wherein the system is coupled to
2 a network, and the first and second set of difference information is received

3 from and output to the network.

1 69. The application of claim 64 further including a versioning
2 module coupled to the difference engine.

1 70. A method for updating data files in a system, comprising
2 receiving first change transactions for a subset of said data
3 files;
4 applying said change transactions to said subset of said data
5 files.
6 subsequent to a change in said data files, generating second
7 change transactions for said files; and
8 outputting said second change transactions to an output.

1 71. The method of claim 70 wherein said receiving step
2 comprises parsing a data stream to extract change transactions identified
3 for the subset of said data files.

1 72. The method of claim 70 wherein said step of applying
2 comprises comparing said change transactions to a data store including
3 data in said subset of data files.

1 73. The method of claim 72 wherein said data store includes said
2 data in a universal data format.

1 74. The method of claim 70 wherein said step of generating
2 includes assigning a universal identification to each change transaction.

1 75. The method of claim 74 further including the step of identifying
2 each change transaction with a version.

1 76. A device engine, comprising:
2 an application object;
3 an application object store; and
4 a delta module.

1 77. The device engine of claim 76 including a plurality of
2 application objects.

1 78. The device engine of claim 77 further including a compression
2 algorithm.

1 79. The device engine of claim 78 further including an encryption
2 algorithm.